

REMARKS

Claims 12-23 were examined. Claims 1-11 were previously canceled. Claim 24-26 are new.

Formal Matters

The specification has been amended to add section headings.

Rejections under 35 USC 102, 103

Claims 12, 13 and 15-23 stand rejected as anticipated by SVATY 5,421,204.

Claim 14 stand rejected as obvious over SVATY in view of FUENTES 5,657,003.

SVATY does not anticipate.

SVATY is offered as a system for monitoring and evaluating structure integrity. At column 2, lines 29-45, SVATY teaches enabling the long-term analysis and evaluation of the structural integrity ... to evaluate ... present safety status. SVATY teaches using strain gauge sensors applied to the structure at predetermined locations for measurement of structure maximum strain and maximum dynamic amplitude. Data gathered by the sensors compared with baseline data on the particular structure and for analysis of structural degradation and safety and for scheduling of structural repair or replacement.

SVATY thus teaches a general sensor and comparing the collected data to baseline data. This does not anticipate the claimed invention.

From specification page 1, beginning at line 9, applicant discusses that structures are subject to "allowable stresses" and that a dangerous phenomenon is represented by a yielding phenomena whereat a great, irreversible plastic deformations starts and then results in the collapse of the structure.

Beginning at line 23, the specification that discloses that the yielding phenomena, the passage from the elastic phase to the plastic phase, is characterized by a variation in the status of crystalline aggregation of the resistant materials with inner creeping of the adhesion surfaces (both for the raw materials and for the aggregates) with consequent irreversible deformations. Such phenomena are accompanied by the generation of seismic and acoustic perturbations which realize into a particular emission of vibratory waves with characteristic frequency and which can be univocally identified. The present invention aims at monitoring the bearing and resistant structures with a suitable device called "Selective Microphone" properly calibrated so as to discriminate only the above described seismic perturbatory phenomena and thus aimed at timely identifying tensional situations of the structures which could reduce the margin of static safety as corresponding to the starting of the yielding phenomena, i.e., the starting of the plastic deformation phase. New claims have been added to recite this feature. No new matter is added by these claims.

SVATY does not disclose a method or system that analyzes or monitors the starting of the plastic deformation phase. Rather, SVATY discloses a method and apparatus for detecting actual deformations of the monitored structural member, by using stain gauge sensors (column 2, lines 33-37). SVATY teaches to measure structural deflection (column 3, lines 4-15) and expansion and contraction (column 3, lines 27 *et seq.*). SVATY uses such data to establish a baseline natural frequency of the structure and then later determine a current natural frequency of the structure for comparison to the initial natural frequency. The difference is an indicator of structure's condition (column 4, lines 40-56).

In contrast to SVATY, the present invention analyzes the yielding status of the monitored structure by using detecting means calibrated on the band of the yielding characteristic frequencies peculiar to the bearing structure to which they are fastened.

Specification page 2, beginning at line 15 discloses that analyzing the yielding status exploits the residual mechanical resistance/strength given by the plastic deformation phase. The invention thus allows one to rely on the residual plastic deformation phase even if the maximum elastic deformation has been overcome.

SVATY does not make this teaching.

Further, SVATY does not disclose the use of seismic and/or vibrational sensors (S), wherein said sensors (S) are respectively calibrated on the band of the yielding characteristic frequencies peculiar to the bearing structure thereon they are fastened.

See that the claims recited sensors that are calibrated *a priori* on the band of the yielding characteristic frequencies peculiar to the bearing structure thereon they are fastened. SVATY does not teach this, nor does the Official Action assert that SVATY makes this disclosure.

The recitation calibration allows for the measurement of the energy emitted by the breaking of crystal bonds during the stress of the supporting structures. Such energy is both measured and identifiable. The present invention uses selective sensors specifically calibrated to detect the energy of the creeping of the adhesion surface (sliding of the crystal planes) of the material constituting the bearing structures.

What SVATY discloses is use of a strain gauge sensor for measurement of structure maximum strain and maximum dynamic amplitude. This is not the same, as per the present invention, as the measurement of vibratory waves generated by the material of the bearing structure being monitored.

Thus, SVATY does not anticipate.

FUENTES also does not teach these features found in the independent claims.

As to claim 13, SVATY does not disclose detecting in real time the occurrence of phenomena showing the presence of structural stresses.

As to claim 15, SVATY is not found to disclose either inertia mechanical accelerometers or piezodynamic sensors.

As to claims 22, 23, SVATY is not found to disclose sensors that are microphones.

For there to be anticipation, the reference must disclose each recited feature of the invention. The present Official Action has not identified where SVATY discloses the features recites by claims 12, 13 and 15-23. Applicant does not find the recited features in SVATY. Accordingly, reconsideration and allowance of all the claims are solicited.

The present amendment is believed to be fully responsive to the Official Action.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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